

REMARKS

The Examiner has objected to claims 5, 11 and 23. The Examiner has rejected claims 1, 13, 18 and 19 under 35 U.S.C. §102(b). The Examiner has rejected claims 2 and 25 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Saito et al. The Examiner has rejected claim 3 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Saito et al and in view of Murata et al. The Examiner has rejected claims 4, 5, 7 through 10, 13, 14, 20 through 22 and 24 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. The Examiner has rejected claim 6 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. in view of Murata et al. The Examiner has rejected claims 15 and 16 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. in view of Saito et al. Lastly, the Examiner has rejected claim 17 under 35 U.S.C. §103(b) as allegedly being obvious over Tse in view of Applicant's Admitted Prior Art. Furthermore, the Examiner has rejected claims 11 and 23 on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1 and 8 of U.S. Pat 6,628,327. However, the Examiner has indicated allowable subject matter in claims 11 and 23 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the above amendments and the following remarks, the Applicants respectfully submit the Examiner to reconsider the pending objections and rejections.

The Claim Objections

The Examiner has objected to claims 5, 11 and 23. As the Examiner has kindly suggested, claims 5, 11 and 23 have been amended to correct the informalities. Accordingly, the Applicants respectfully submit that the objections to claims 5, 11 and 23 should be withdrawn.

The Rejections under 35 USC §102

The Examiner has rejected claims 1, 13, 18 and 19 under 35 U.S.C. §102(b) as allegedly being anticipated by Tse. (U.S. Pat. No 5,477,345). It appears from the rest of the pending rejections that the Examiner has perhaps meant the rejection of independent claim 12 rather than claim 11 under 35 U.S.C. §102(b) as allegedly being anticipated by Tse. Since independent claim 12 has not been rejected in the currently pending Office Action and the Examiner on page 4 refers independent system claim, the Applicants have assumed the above rejection basis.

According to the Examiner, the Tse reference discloses every element of independent claims 1 and 13. The Examiner points out that the Tse reference discloses the placing step by Figure 2; the sampling step by Figure 2; the generating step by the gain correction in Figure 1 and lines 14 through 19 in column 9; and the adjusting and estimating steps by the gain and luminance correction in Figure 1. Similarly, the Examiner points out that the same cited reference discloses independent system claim 12. In view of the following remarks on the newly amended independent claims, the Applicants respectfully request the Examiner to consider the following distinctions over the above disclosures in the cited prior art reference.

Newly amended independent claims 1 and 12 explicitly recite the patentably distinct features. Independent method claim 1 now explicitly recites “each of the color-component specific photo elements filtering a single predetermined color-component ...[and] corresponding to a single pixel” and “estimating an intensity value for each of the pixels based upon the chroma values adjusted in said step d) and the color image data from said step b).” Similarly, independent system claim 12 now explicitly recites “a plurality of color image sensors each having a predetermined spatial pattern of color-component specific photo elements for generating color image data, each of the color-

component specific photo elements filtering a predetermined color-component over one of sub-unit areas in a unit area, said color image sensor sampling the color image data for the unit area using the color-component specific photo elements, each of the color-component specific photo elements corresponding to a single pixel” and “an intensity estimator connected to said interpolated chroma value generator and said color image sensor for estimating an intensity value for each of the pixels based upon the interpolated chroma values and the color image data.”

The above explicit recitations require that the intensity values are estimated for each pixel according to “the predetermined pattern of the color-component specific photo elements.” In other words, since the chroma values depend upon “the specified pattern of the color-component specific elements,” the intensity value is estimated from a single predetermined color-component specific photo element that filters “a single predetermined color-component.” For example, an intensity value is estimated from a chroma value that is not necessarily obtained from a G color-component specific photo element and that from a R color-component specific photo element or a B color-component specific photo element.

In contrast, the Tse reference fails to anticipate the above patentable features. The Tse reference discloses the luminance channel based upon the green (G) color sensors and the chrominance or chroma channel based upon the red and blue (R/B) color sensors. In other words, while the green sensor represents a single pixel for an intensity value, the chroma values are available from the red and blue color sensors each of which do not correspond to a single pixel. Furthermore, at lines 18 through 21 in column 9, the Tse reference teaches a single spatial pattern results in the chrominance values at a low resolution. The chrominance channel spatial sampling resolution is one half of luminance in both fast and slow scan directions due to the single fixed spatial arrangement. The R and B color elements cover four times the area of the G elements in the fixed single spatial arrangement. In any case, each intensity level is determined by

the four pixels as denoted by (n, n) that are adjacent with each other as disclosed at line 30, column 13 through line 48, column 14.

Based upon the above reasons, the Applicants respectfully submit that the rejection of the above claims under 35 USC §102 should be withdrawn.

The Rejections under 35 USC §103

The Examiner has rejected claims 2 and 25 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Saito et al. The Examiner has rejected claim 3 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Saito et al and in view of Murata et al. The Examiner has rejected claims 4, 5, 7 through 10, 13, 14, 20 through 22 and 24 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. The Examiner has rejected claim 6 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. in view of Murata et al. The Examiner has rejected claims 15 and 16 under 35 U.S.C. §103(b) as allegedly being obvious over Tse and Shimizu et al. in view of Saito et al. Lastly, the Examiner has rejected claim 17 under 35 U.S.C. §103(b) as allegedly being obvious over Tse in view of Applicant's Admitted Prior Art.

The Tse reference fails to teach, disclose or suggest any variation for the the "intensity value" estimation from a single pixel whose color specific component is sensitive to a predetermined single color.

On the other hand, as explicitly recited in newly amended independent claims 1, 12 and 25, the intensity values are estimated for a single pixel from the image color data that is obtained from each of single pixels. As supported by the original disclosures from page 8 through page 12 of the current application, the intensity value estimation depends upon the pattern of color-component specific elements and a single color-component specific photo element. Because of these, independent claims 26 clearly distinguish the

disclosures of the cited references. Thus, it would not have been obvious to one of ordinary skill in the art to provide the methods and systems according to the current invention based upon the disclosures of the cited references alone or in combination.

The Examiner has also rejected claims 2 through 10, 13 through 17, 20 through 22, 24 and 25 under 35 USC §103 as being obvious over Tse (U.S. Patent No. 5,477,345) in combination with Saito et al., Murata et al., Shimizu et al. or Applicant's Admitted Prior Art. None of the cited references alone or in combination discloses, teaches or suggests the above described patentable features. For the above reasons, the Applicants respectfully submit that the rejection of the above claims under 35 USC §103 should be withdrawn.

Newly added Claims

The newly added claims recite the above described patentably distinct features of the current invention. The newly added claims do not introduce any new matter as they have been supported by the original disclosures of the current application. For these reasons, the Applicants respectfully submit to the Examiner that the newly added claims should be entered and allowed.

Conclusion

In view of the above amendments and the foregoing remarks, Applicants respectfully submit that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

DOCKET NO.: RCOH-0096DIV

PATENT

Serial No.: 10/630,824

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Amendment dated March 15, 2007

Response to Office Action of December 15, 2006

Respectfully submitted,

/KIY/

Date: March 15, 2007

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